

What is claimed is:

1. A polishing apparatus for polishing a surface of a workpiece comprising:

5 a turntable having a polishing surface thereon;

a top ring for supporting the workpiece to be polished and pressing the workpiece against said polishing surface under a first pressing force, said top ring having a holding surface for holding the workpiece;

10 a pressurized fluid source for supplying pressurized fluid;

a plurality of openings provided in said holding surface of said top ring for ejecting said pressurized fluid supplied from said pressurized fluid source, a plurality of 15 areas each having said openings being defined in said holding surface so that said pressurized fluid is selectively ejectable from said openings in said respective areas.

2. An apparatus according to claim 1, wherein said 20 plurality of areas comprises concentric annular areas.

3. An apparatus according to claim 1, wherein said plurality of areas are defined by communicating with a plurality of chambers, respectively formed in said top ring 25 through said openings.

4. An apparatus according to claim 1, wherein said first pressing force and a pressure of said pressurized fluid

are variable independently of each other.

5. An apparatus according to claim 1, wherein a pressure of said pressurized fluid is variable in each of said 5 areas.

6. An apparatus according to claim 1, further comprising:

a presser ring vertically movably disposed around 10 said top ring; and

a pressing device for pressing said presser ring against said polishing surface under a second pressing force which is variable.

15 7. An apparatus according to claim 1, wherein said top ring has a recess defined therein for accommodating the workpiece therein.

8. A method of polishing a workpiece, comprising the 20 steps of:

holding a workpiece between a polishing surface of a turntable and a holding surface of a top ring disposed above said turntable;

pressing the workpiece by said top ring against said 25 polishing surface under a first pressing force; and

ejecting pressurized fluid from openings in a plurality of areas in said holding surface of said top ring toward the workpiece held by said top ring, said pressurized

fluid being selectively ejectable from said openings in said respective areas; and

polishing the workpiece in such a state that a pressing force applied to the workpiece by said pressurized 5 fluid is variable in a central portion and an outer circumferential portion of the workpiece, respectively.

9. A method according to claim 8, further comprising the step of:

10       pressing a presser ring vertically movably disposed around said top ring against said polishing surface around the workpiece under a second pressing force which is determined based on said first pressing force.

15       10. A method according to claim 8, said second pressing force is determined on the basis of a pressure distribution on the workpiece caused by said pressurized fluid ejected from said openings in said respective areas.

20       11. A top ring for supporting the workpiece to be polished, for use in a polishing apparatus, comprising:

          a holding surface for holding the workpiece; and  
          a plurality of openings, provided in said holding surface, from which pressurized fluid is ejected, a plurality 25 of areas each having said openings being defined in said holding surface so that said pressurized fluid is selectively ejectable from said openings in said respective areas.